Amendments to the Specification

Amendments to paragraphs [004], [006], [025], and [033] have been made to correct typographical errors.

[004] Unfortunately, PAs and other components such as the LNA, are highly specialized components that have specifications that generally do not overlap with other radio frequency bands. Thus, a 5.8 GHz PA is generally not suitable for use as a 2.4GHz PA. As a result, distinct components such as the LNAs and PAs are incorporated into the module in order to accommodate different radio standards. Moreover, many of the high performance RF components such as PAs and LNAs have a relatively low level of ancillary circuit integration. For example, voltage regulation circuits, temperature regulation circuits, control circuits and other circuits that are used for control and optimization of the operation of the PA are often not integrated into a same die with the PA but rather disposed as discrete components, on separate semiconductor substrates, within the module surrounding the PA die. It is well understood by most module designers that adding more components to the module increases cost, reduces yield and durability while resulting in an increase in module size. This effect is compounded when additional circuitry is used for each active RF component such as an RF switch, LNA, and PA.

[006] However, the usage of SiGe BiCMOS technology in the industry is currently limited. For example, for 5.8GHz PAs, only a small number of manufacturers are utilizing SiGe ~~for~~ whereas several end users are utilizing GaAs or group III-V based technologies. The GaAs based technologies however offer more gain per stage and lower losses in the RF signal path at 5.8GHz. GaAs based technology, however, is often unsuitable for the integration of ancillary circuits for use with the GaAs based RF component. Voltage regulation, for example, may not be integrated into the GaAs based PA due to the lack of suitable elementary devices within the GaAs based technology. Therefore, in the context of a module, the module designer is compelled to add those additional circuits, or dies, for supporting of the GaAs based components. As mentioned previously, the addition of more components causes a detriment to the module size and cost.

[0025] A first plurality of ancillary circuitry 303a through 303n, in the form of a first plurality of control circuitry, is disposed within the first semiconductor substrate 311. At least one of the plurality 303n of ancillary circuitry, 303a through 303n, is unrelated to the operation of the first signal conditioning circuit 301 and used for accommodating the requirements of the second signal conditioning circuit 302 formed on the second semiconductor substrate 312. A plurality of electrical connections, 306a through 306n, - in the form of wire bonds, for example, is used for electrically coupling the at least one of the plurality 303n of ancillary circuitry to the second semiconductor substrate 312 for use by the second signal conditioning circuit 302. The plurality of electrical connections are disposed between a first plurality of interface ports disposed on the first semiconductor die and connected to the a least one of the plurality 303n of ancillary circuitry, 303a through 303n, and a second plurality of interface ports. The second plurality of interface ports are connected to the second signal conditioning circuit 302. The second signal conditioning circuit 302 is for performing a second signal conditioning function in conjunction with the [[a]]at least one of the plurality 303n of ancillary circuitry, 303a through 303n, connected thereto. The first signal conditioning circuit 301 is for performing a first signal conditioning function independent of the second signal conditioning circuit 302. As a result, RF signals propagating along the first signal path and the second signal path do not interfere with each other because the signal paths are separated on separate semiconductor dies.

[0033] When the module design is performed, the signal conditioning circuit and ancillary circuits are integrated on the semiconductor dies in such a manner that the area of the die is minimized and other issues, such as noise and ~~cornstalk~~crosstalk, are also reduced. In the prior art, different signal conditioning and ancillary circuits are often disposed within the modules without foresight given to a reduction in module area and minimization of individual semiconductor die usage. Typically many different semiconductors dies are disposed within the module on the substrate, which unfortunately increases the manufacturing costs and does not result in a compact module size. Additionally, using some semiconductor manufacturing technologies is more costly for implementing of certain ancillary circuitry. For example, GaN and InP technologies have

much larger costs associated with die ~~are~~ usage than silicon-based technologies. As a result, implementing an ancillary circuit in InP or GaN becomes significantly more expensive than implementing the functionally similar ancillary circuit in a silicon based technology.